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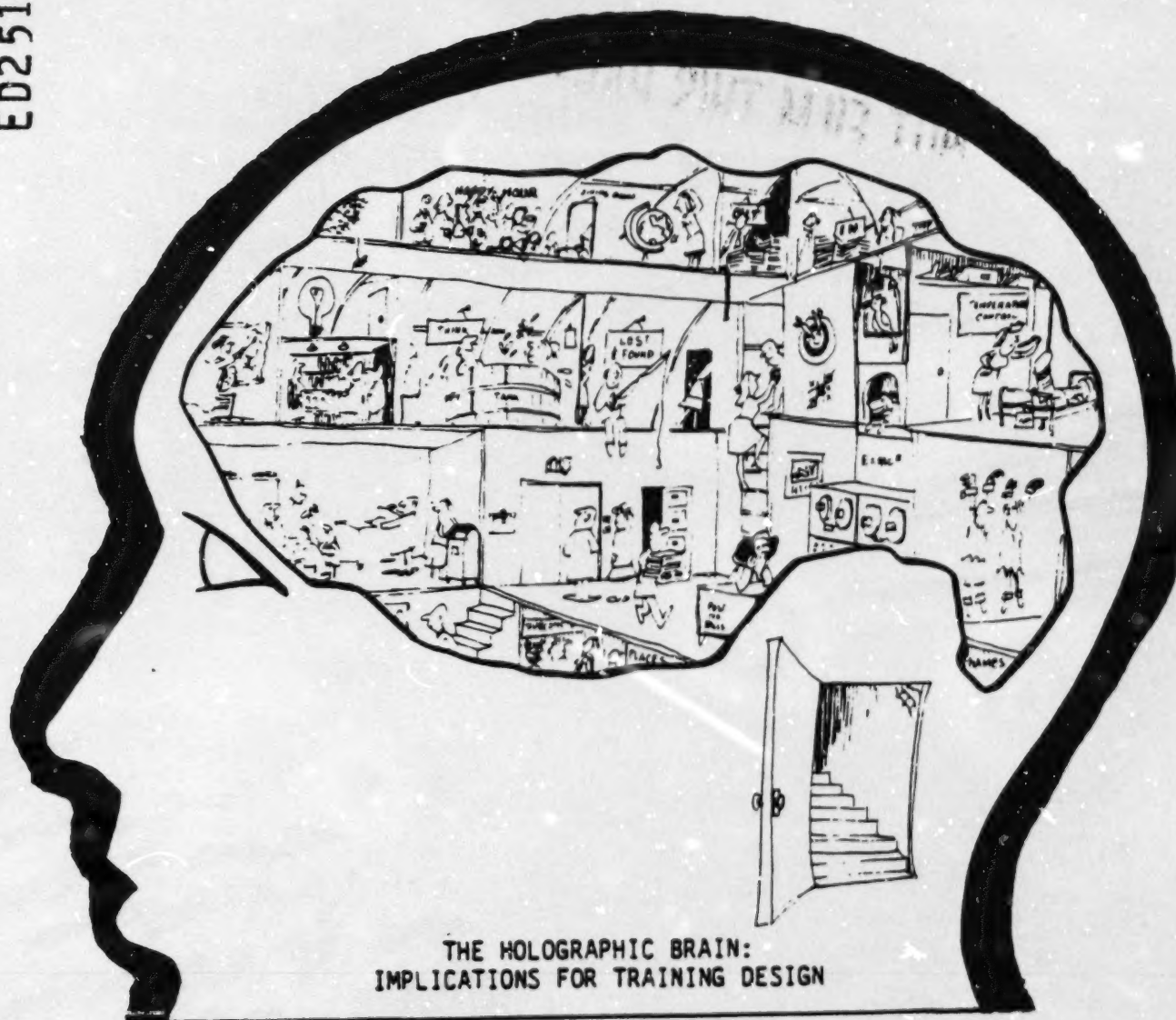
ABSTRACT

Without special training, most people predominantly process data in one of four ways. Few achieve a coveted whole brain state that integrates such important but separate brain functions as logic and intuition. With new training techniques that exploit the holographic properties of the brain, organizations may be able to tap powerful whole brain processes and help people adjust to the paradoxes that accompany changing cultural and commercial paradigms. These new techniques are based on data drawn from theoretical physics, living systems theory, the work of brain theorists Paul McLean, Roger Sperry, and Ward Halstead, as well as Carl Jung's typology of healthy personalities. Their findings suggest that trainers should chart the processes they intend to use in training and determine which learning styles they engage. As the training outline is devised, trainees should lay out a grid that indicates the styles they are calling upon and determine whether and when participants are asked to operate in their thinking, intuitive, sensing, or feeling mode. By appealing to all styles, a trainer can insure that key messages get across to everyone. Communicating to persons who are operating in various mind styles as well as spotting error signals activated in the training is a professional challenge. Fortunately, no matter how well defined a system is, there are always ways to use the brain's design functions to advantage. Successes with whole brain processes point toward resolving one of the fundamental paradoxes of this culture: the desire to have a high degree of collective purpose while maximizing individuality and diversity.

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THE HOLOGRAPHIC BRAIN: IMPLICATIONS FOR TRAINING DESIGN

By

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The Holographic Brain: Implications for Training Design

James R. Jones

Like ancient cartographers who charted unknown seas in search of new avenues of commerce, brain/mind trainers are mapping the inner workings of the black box that is the human brain. The latest charts suggest that people use their minds very differently, with each person predominantly relying on certain portions of the brain that govern the personal and professional skills the individual manifests.

Emerging models of brain function cast light on how brain design determines individual values and world views. Brain maps reveal how people may filter messages and mind style theories suggest how individuals and organizations can achieve higher levels of functioning.

Without special training, most people predominantly process data in one of four ways. Few achieve a coveted whole brain state that integrates such important but separate brain functions as logic and intuition. Yet, the work of Keniche Ohmae, author of the The Mind of the Strategist, suggests that whole brain activation should be highly prized in commerce. He contends that successful business strategies result from a particular state of mind that is strongly suggestive of whole brain functioning. Calling this state strategic thinking, Ohmae argues that those who exhibit this phenomena get their results "not from rigorous analysis" but from a mind state that is not either "mechanical or intuitive, but a combination of both and more."

With new training techniques that exploit the holographic properties of the brain, organizations may be able to tap powerful whole brain processes and help people adjust to the paradoxes that accompany changing cultural and commercial paradigms. These new techniques are based on data drawn from theoretical physics, living systems theory, the work of brain theorists Paul McLean, Roger Sperry, and the late Ward Halstead, as well as Carl Jung's typology of healthy personalities.

A heavyweight among his peers, neurologist Paul MacLean formerly directed the Laboratory of Brain Evolution and Behavior at the National Institute of Mental Health. To demystify the secret processes of the brain, MacLean started at the beginning. He showed that the brain started as a simple mechanism that protected territory, prompted aggression, and drove man to self preservation. This illiterate, hard-wired reptilian brain still performs these same functions today, according to MacLean, but it operates in commerce and industry instead of on the hunting ground. Over time, MacLean believes more complex machinery evolved as the size of the brain grew. As man gathered into groups, a second brain evolved. This limbic brain controls emotions, bonding and behavior. It stimulates biochemical processes that release the chemicals that produce all of our feelings -- caring, joy, anger, etc. The third portion, the neocortex, governs abstract thinking -- language, calculations, spatial relationships, and creativity. Its right and left hemispheres are what are referred to as the right and left brains.

Nobel Laureate Roger Sperry of the California Institute of Technology discovered that the right and left hemispheres of the neocortex process information separately, and that each side perceives reality in its own way. The non-verbal right side sees in pictures and symbols and perceives how parts go together to form wholes. Its particular talents are intuition, insight, and the ability to create new combinations of ideas. The highly verbal left hemisphere specializes in language, analytic reasoning, logic, longterm memory, reading, writing, speaking, and math.

University of Chicago neuropsychologist Ward Halstead delved into the secrets of the frontal and posterior sections of the neocortex by testing patients who had undergone prefrontal lobotomy. When surgeons severed the frontal section of the neocortex, Halstead found that, although there was no change in IQ, lobotomy patients experienced a blunting of their social awareness, moral standards, and emotional response. Hence, he maintained that the front section of the neocortex is the seat of foresight, self-regulation, adult social sense, and analytic thinking, while the posterior section acts as a center for experience and intelligence. By combining Halstead and Sperry's design discoveries, theorists produced a four-grid

model that many trainers rely on to describe how the functional design of the human brain affects a person's state of mind.

Long before popular four-grid models were postulated, Swiss psychoanalyst Carl Jung described human behaviors that are influenced by left or right brain dominance. His typology of personality included a category for "intuitive personalities" that foreshadowed the discovery of the right brain functions of the neocortex. Intuitives, Jung wrote, are people who see possibilities, work out new ideas, and solve novel problems. As for other preferences for relating to the world, Jung believed the other major personality functions were sensing, thinking, and feeling. Like people who are left-brain dominant, thinkers were logical, analytical, objective, organized, just, and critical. Feeling types had characteristics similar to the functions Halstead discovered that the forebrain performs. They are sensitive to the feelings of others, understand human needs, and can persuade. The practical sensing types exhibited patience, care, and had good memories.

Because most people primarily process data in one of the four ways Jung described, D.A. Kolb was able to assign learning styles to Jung's typology. Thinking types were labeled as abstract conceptualizers, sensing types use active experimentation, and feeling personalities rely on concrete experience. Intuitive types use reflection and observation to acquire and process information, hence people who operate primarily in an intuitive mode need sufficient time to reflect on data. Brain researcher Beverly Galyean has shown that our society focuses its energies on logical, linear, sequential modes of thought. Others have found that three out of four people in the population primarily rely on the highly vaunted left brain functions while only one in four consistently uses the capacities of the right brain to solve problems.

These findings suggest that trainers should chart the processes they intend to use in a training and determine which learning styles they engage. As the training outline is devised, lay out a grid that indicates the styles you are calling upon and determine whether and when participants are asked to operate in their thinking, intuitive, sensing, or feeling mode. By appealing to all styles a trainer can insure that key messages get across to everyone.

Organizing Principles

Brain/mind data implies that brains systematically monitor information for use in interacting with people and solving problems. Although this process is largely unconscious, it creates what I call "organizing principles" which govern our thoughts, feelings, judgments and perceptions. Normally we selectively gather data to reinforce these unexamined guiding notions, thereby allowing our organizing principles to define reality. From moment to moment, whatever perception the organizing principle defines as real, the brain treats as the ultimate truth. Therefore people assume they know exactly what is true and operate on their beliefs almost automatically.

It doesn't matter how many times a person goes through growth experiences that widen the perception of reality, the individual will eventually redefine the new reality with a fresh set of organizing principles. If the new world view is challenged, the brain will disavow any opposing opinions. Because of this brain design function, if I assert something that confronts your inner world view, an error signal will be triggered, causing you to immediately examine what you know to be true and to conclude, "that person doesn't know what he's talking about." Thus, the brain operates from an inner, rather than an external world view, with each mind creating its own reality.

Psychologists William Powers and Bill Glasser have described this function of the brain as Control System Psychology. They postulate that all information comes to comparing stations in the brain to be checked against our inner world view (value system, organizing principles or internal psychological map).

Brain-mind researcher Clare Graves, Professor Emeritus of Psychology at Union College in New York, developed a model to describe how the brain checks adult world views against the external world. He believes new sets of human values emerge as new problems present themselves, placing new demands on the internal coping mechanisms of the brain and forcing the biological machinery to create new patterns of reality. To survive the crisis, the brain's view of the world has to be shaken and a new coping system

created. As masses of people experience the same phenomena, predominant societal views of reality are discarded to make way for emerging paradigms. Trainers can exploit this propensity for developing new coping strategies in order to create new organizational cultures, new world views, and a commitment to productivity and excellence. But they must keep in mind that while individuals may be progressively altering their world views and reflecting higher order mind styles, each individual continues to operate from a variety of evolving world views or mind styles. Moreover, each person believes his own world view is the only valid one.

A major mind style is the tribalistic, animalistic view of reality. According to Graves, when confronted with a problem, right brained individuals sacrifice their personal interests for the benefit of the tribe. Actions taken in this paradigm are measured against rules governing ancestors, spirits, and oral traditions. As tribes and people diverge, left-brained individuals seek personal identity, which gives rise to an egocentric or explorative world view. Individuals decide they are the center of their own universe and seek status and ways of acquiring and using power. The brain measures their behavior according to whether options offer immediate personal benefits or avert personal disgrace. The next two opposing world views to emerge are the absolutist/loyalist and the materialist/multiplist. Absolutists are loyal to a group because of a promise of later reward. In our modern world, religions and bureaucracies have been built on this premise. At the opposite extreme is the materialistic style which is calculated to attain immediate or short-term gain. Individuals who prefer this mind style operate on the basis of enlightened self-interest and are willing to work with others as long as they get an immediate reward.

In the 1960s, a popular inner view of reality was the participative/egalitarian approach wherein individuals saw humanity as a family. Many people were willing to sacrifice so that they and others could immediately benefit. The brain measured individual behaviors on the basis of whether actions would be approved by one's group and whether they promoted human cooperation. In this milieu, quality circles, participative management, and matrix management developed naturally in American business. The newest world view is integrative/systemic. Individuals aim to get what they need,

but only through win-win situations. More globalistic in its approach, this world view considers the world as an open system that requires participants to honor all those involved in its operation. Behaviors are appropriate if they provide intellectual stimulation, use resources wisely, and benefit all life.

Communicating to individuals who are operating in various mind styles as well as spotting error signals activated in the training is a professional challenge. When the brain's inner reality is violated, a person will stop listening and seek ways to defend his or her own version of reality against the trainer, who acts as a stimulus.

Fortunately, no matter how well defined a system is, there are always ways to use the brain's design functions to advantage. Mathematical theory tells us there is always a way to get out of the system. You can do the unexpected, as an American hostage did in Iran. Hostage John Limbrick greeted his Iranian captors with an Islamic idiom each time they came to harass him. Because the Islamic religion required that his tormentors respond positively, Limbrick managed to redirect the social situation contrary to the intention of his captors. By slipping and sliding cultural symbols or changing things linearly, trainers can avoid the domination of individual mind styles. Moreover, they can assist people in finding new ways to cope with the many paradoxes being posed in an era of rapid change. Such internal conflicts over legitimate, opposing personal values include efficiency versus profit, leadership versus profit, and status versus autonomy.

Graves's work implies that a path to more sophisticated coping strategies is through solving problems of existence. When confronted with a paradigm shift (work smarter, not harder), an environmental challenge forces subtle, but important psychological and cultural changes in existing social systems, not the least of which are changes in individual mind styles. Thus, a delicate network of personal, social, technical, and environmental factors can be profoundly affected by shifts of individual reference.

Whole-Brain Training

My work in several organizations suggests that new frames of reference can be created by triggering the brain's holographic properties. A whole brain processing technique known as hemispheric synchronization stimulates the brain to operate in a wholistic way. In organizations, the effect of holographic training is as subtle and wholistic as the acoustic process itself.

When this whole brain process is used, two sounds integrate the operation of the left and right hemispheres of the brain, quieting the limbic system and the left quadrant and allowing the upper right quadrant of the neocortex to exercise its forecasting, planning, and visioning capacities. Hence participants are able to generate a constant flow of images and symbols while they still have access to their rational, integrative processes.

When the whole brain is functioning, there appears to be an infinite capacity to create new frames of reference. In a world of rapid change, holographic techniques promise to assist people and organizations in shifting to new sets of organizing principles as the environment of the culture and the marketplace changes.

This reframing process is possible because the brain appears to have its own internal reference signal, an energy stream that apparently processes and disseminates information much like a laser scatters an image on a holographic plate. If the plate is cut in half, the full image will appear in three dimensional form when the object is stimulated with a laser. English physicist David Bohm and Stanford University neurophysiologist Carl Pribram believe the brain processes information much the same as the laser produces the holograph. If they are right, that would mean that the site of functional capacities of the brain is not as significant as previously believed. The brain's own internal reference signal, like a laser light, could scatter, process, and recollect information from any segment of a message.

Holographic training enables people to move beyond mere problem-solving to finding possibilities for personal and professional growth and development, the kind of thinking displayed by the late Ray Kroc. While working as a salesman, Kroc received an unusual order for milkshake machines and decided to find out why a small restaurant wanted six of the devices rather than the usual single order. On a visit to the restaurant, he learned that the proprietors had discovered how to precook and warm the hamburgers until the noon rush, a unique feat in the late 1950s. By utilizing half a dozen milkshake machines the owners believed they could meet the demand for shakes among hamburger lovers. Seeing a possibility in this dilemma, Kroc realized the proprietors had found a way of marketing restaurant food that would probably appeal to millions of Americans. For him, the order for six milkshake machines suggested that fast food restaurants could be successful -- an insight that earned him millions as a chief executive officer of McDonalds.

Participants from organizations in our whole-brain trainings have demonstrated the capacity to develop a visionary collective purpose. That vision allows the individuals to carry out work assignments in new situations and feel that they are growing, developing, and operating maximally. In organizations where paradigm shifts are creating misalignments, these people are able to create the necessary contextual shifts as a collective unit. Although people have perceptual differences they are able to experience that their work fits into the larger whole of the organization. An example of this came out of my recent work with the human resource staff of the American Red Cross.

For generations, the Red Cross had sustained itself by collecting donated blood and processing it for a fee, thus enabling the group to do humanitarian work throughout the world. Biotechnology companies now threaten to produce enough blood products to eliminate the need for staple Red Cross services, so the organization is being pushed into such new arenas as acquiring donor organs for transplants. The Red Cross has always been managed in a right-brain style which places greater emphasis on relationships with fellow workers and vendors than on efficiency. New challenges necessitate a shift in organizational culture to contend with a competitive

marketplace that places a high premium on high performance, efficiency, and productivity.

This new organizational culture meant people had to shift from working with a network of trusted associates to relying on high-performing, competitive individuals who were often unknown entities, a situation rife with personal paradox. In a workshop designed to align individuals with the new organizational values, hemispheric synchronization empowered staff to see possibilities within the new cultural norms. One participant reported gaining the insight, "I realize that we managers need not be controlled by events, but rather can make things happen. My intuition is a necessary complement to rational thinking. We will produce effective results as long as we are dedicated to knowing and confirming the best in each other and within ourselves."

Successes with whole brain processes point toward resolving one of the fundamental paradoxes of this culture: the desire to have a high degree of collective purpose while maximizing individuality and diversity.

Suggested Readings

- Bentov, Itzhak. Stalking the Wild Pendulum. New York, NY: Bantam Books, 1977.
- Bohm, David. Wholeness and the Implicit Order. Boston: Routledge and Kegan, Paul, 1980.
- Brown, Barbara. Supermind: The Ultimate Energy. New York: Bantam Books, 1980.
- Glasser, William. Stations of the Mind. New York: Harper & Row, 1981.
- Hampden-Turner, Charles. Maps of the Mind. New York: MacMillan, 1981.
- Houston, Jean. The Possible Human. Los Angeles: J.P. Tarcher, 1982.
- May, Rollo. The Courage to Create. New York: W.W. Norton, 1975.
- Russell, Peter. The Brain Book. New York: Hawthorne Books, Inc. 1979.
- Wilber, Ken. Up From Eden: A Transpersonal View of Human Evolution. New York: Doubleday, 1982.

JAMES R. JONES

An experienced executive in profit-oriented management with 15 years in both technical and people-intensive companies. Mr. Jones has directed and coordinated performance monitoring and evaluation and implemented cost effective fiscal systems. He is experienced in identifying problems, prioritizing needs, selling new concepts to senior management, developing innovative programs and managing successful program implementation. He is experienced in developing new programs and services and negotiating resources needed to manage and run an organization.

As a consultant, Mr. Jones provided internal or external consulting assistance in the areas of planning, organizational development, human resources utilization, advocacy, and productivity. Specifically, he has:

- . Developed a successful approach to Career/Life Planning which supports individuals in quickly finding gainful employment with reduced stress. Has assisted over 2400 people in making successful career transitions and five companies in instituting major organizational changes.
- . Produced significant results through creating and implementing communication, performance, and compensation systems with Sperry-Rand, NASA, and Department of Labor.
- . Expanded organizational effectiveness of the Riggs National Bank, National Alliance of Businessmen, International Communication Agency, Bell & Howell, and Army Missile Command by instituting developmental systems tailored to meet specific organizational and group needs.
- . Created coalitions for the Association of Huntsville Area Contractors, ASPA, U.S. Jaycess and Partnership for Productivity which expanded the abilities of these organizations to affect their environment positively.
- . Represented the General Research Corporation, United Planning Organization, and Personal Awareness Institute before civic groups, professional societies, governmental entities and with the media.

Mr. Jones has an MBA, with a specialty in Organizational Behavior. He has received his process consulting certificate and has undergone extensive professional development with such organizations as: ASTD, ASPA, AMA, NTL, ODN, SIETAR, TORI, Telmetrics, and Meninger Foundation. Topics studied include: Facilitating and Managing Complex Systems Change, Leadership and Authority in Organizations; Organizational Conflict Management; Increasing Productivity; Problem Solving Techniques; Performance Appraisal; Coaching Skills; Employee Relations; Compensation; Recruiting Job Classification; Personal Power and Influence; Life's Stages and Transitions; Human Relations; and Group Dynamics.